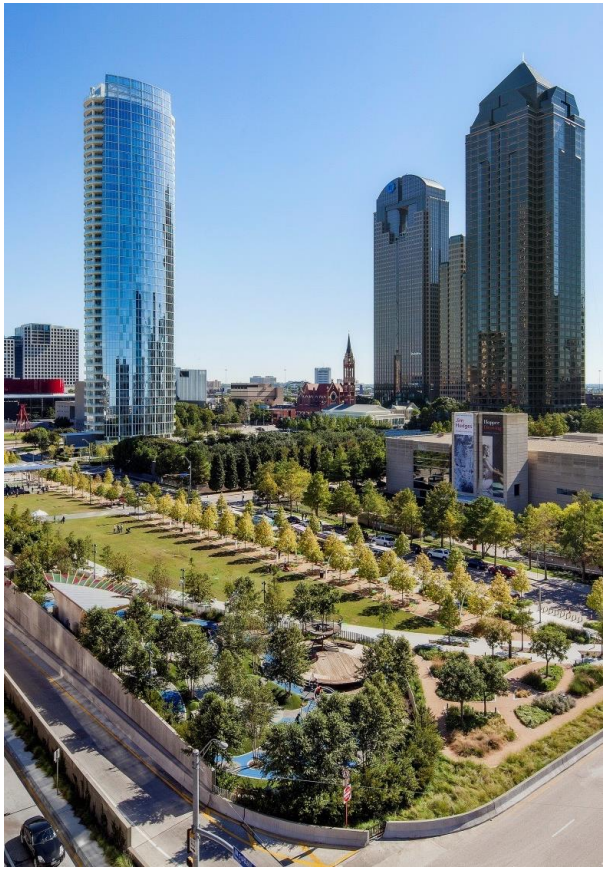


Dallas, Texas:

A Case Study in Municipal Sustainability Leadership

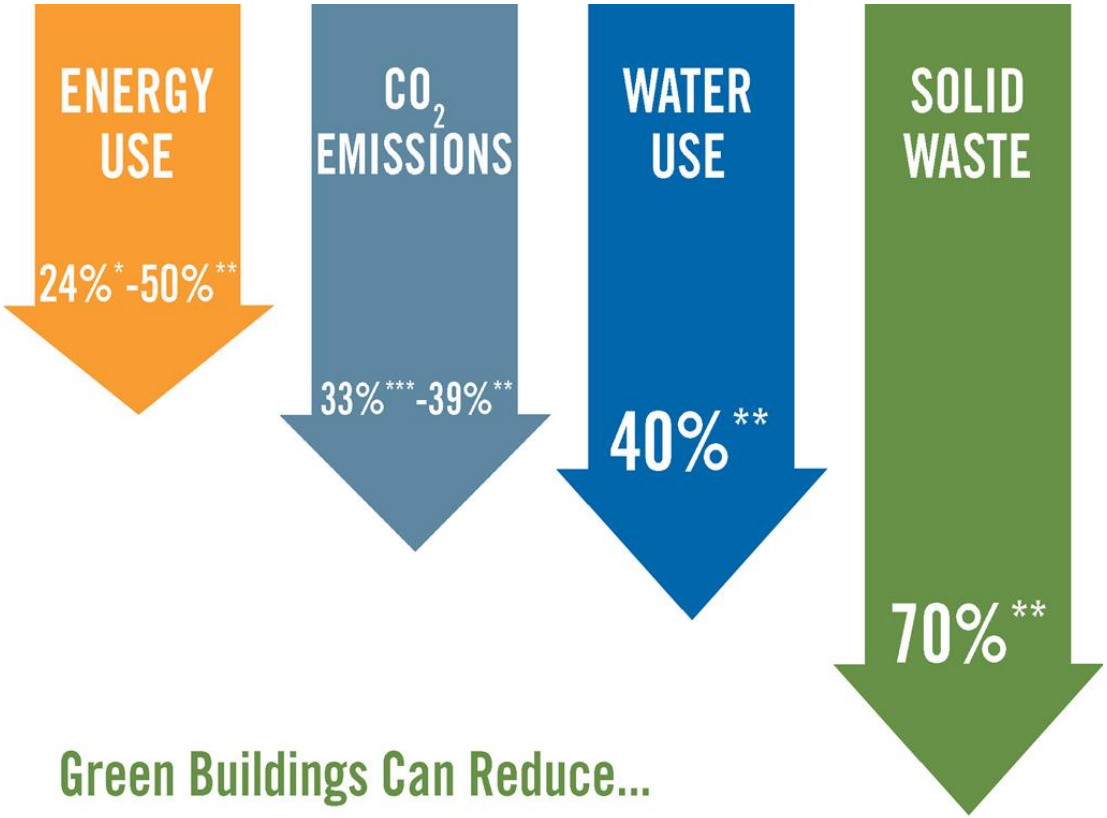
Presented by: Zaida Basora, FAIA, LEED AP BD+C

Drivers of Sustainability

- Global, federal, local government environmental mandates
- Deregulation in Texas
- Rising fuel and energy prices
- Need for conservation of natural resources
- Climate Change
- Better building through green building technical practices
- Sound business development strategies- Green building is cost-effective

35% of Green House Gases

Why Dallas Adopted LEED



* Turner, C. & Frankel, M. (2008). Energy performance of LEED for New Construction buildings: Final report.
** Kats, G. (2003). The Costs and Financial Benefits of Green Building: A Report to California's Sustainable Building Task Force.
*** GSA Public Buildings Service (2008). Assessing green building performance: A post occupancy evaluation of 12 GSA buildings.

Why Dallas Adopted LEED

LEED facilitates positive results for the environment, occupant health and financial return

LEED allows a way to:

Measure and compare “green” facilities

Promote whole-building, integrated design processes

Lower life-cycle costs, such as energy and operating costs

Why Dallas Adopted LEED

LEED ENABLES INCREASED EFFICIENCY AND REDUCED RESOURCE NEEDS

LEED is the most widely used green building rating system in the world, and for good reason.

Available for virtually all building, community, and home project types, LEED provides a framework to create highly efficient, cost saving green buildings. LEED projects must meet a set of rigorous criteria in a flexible system of prerequisites and optional credits that, when combined, set building projects on the path to excellence in resource efficiency and overall resilience.

Why Dallas Adopted LEED

IN 2003:

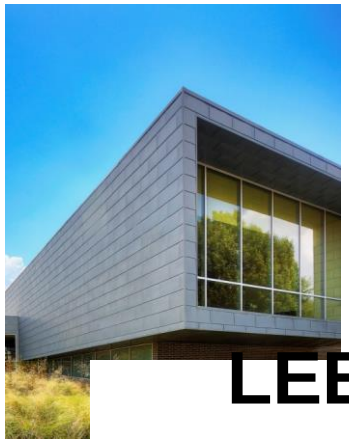
The City was prepared to pay initial higher cost in exchange for higher return on building maintenance and operation costs

…AND

DALLAS WANTED TO PRACTICE LEADERSHIP BY EXAMPLE

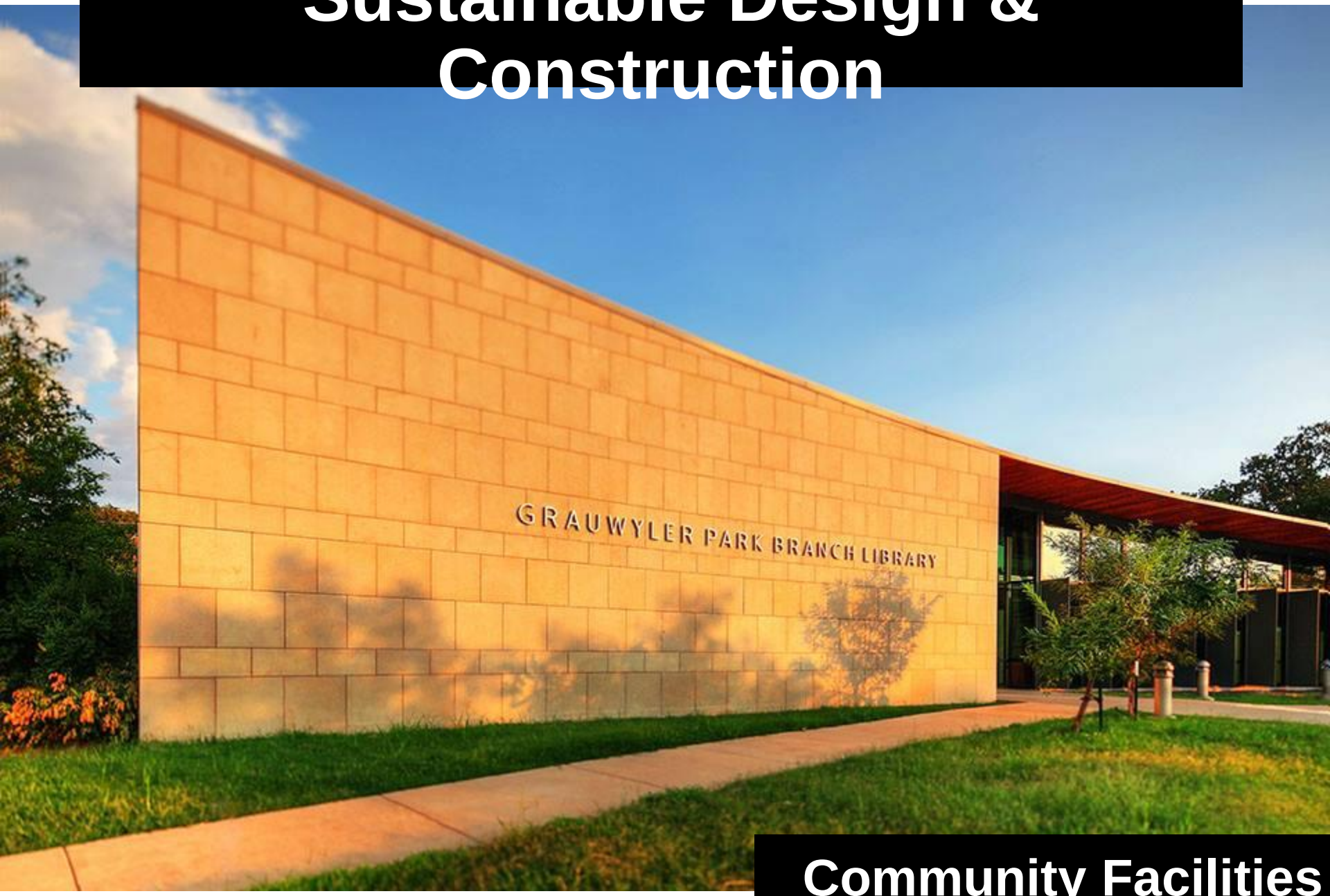
Municipal Green Building Program

- Adopted on January 22, 2003 – all municipal projects over 10,000 s.f. to be LEED Silver Certified
- To date the City of Dallas has over 40 LEED certified buildings, including 2 LEED Platinum and 2 LEED EB Silver



LEED Silver Minimum Policy

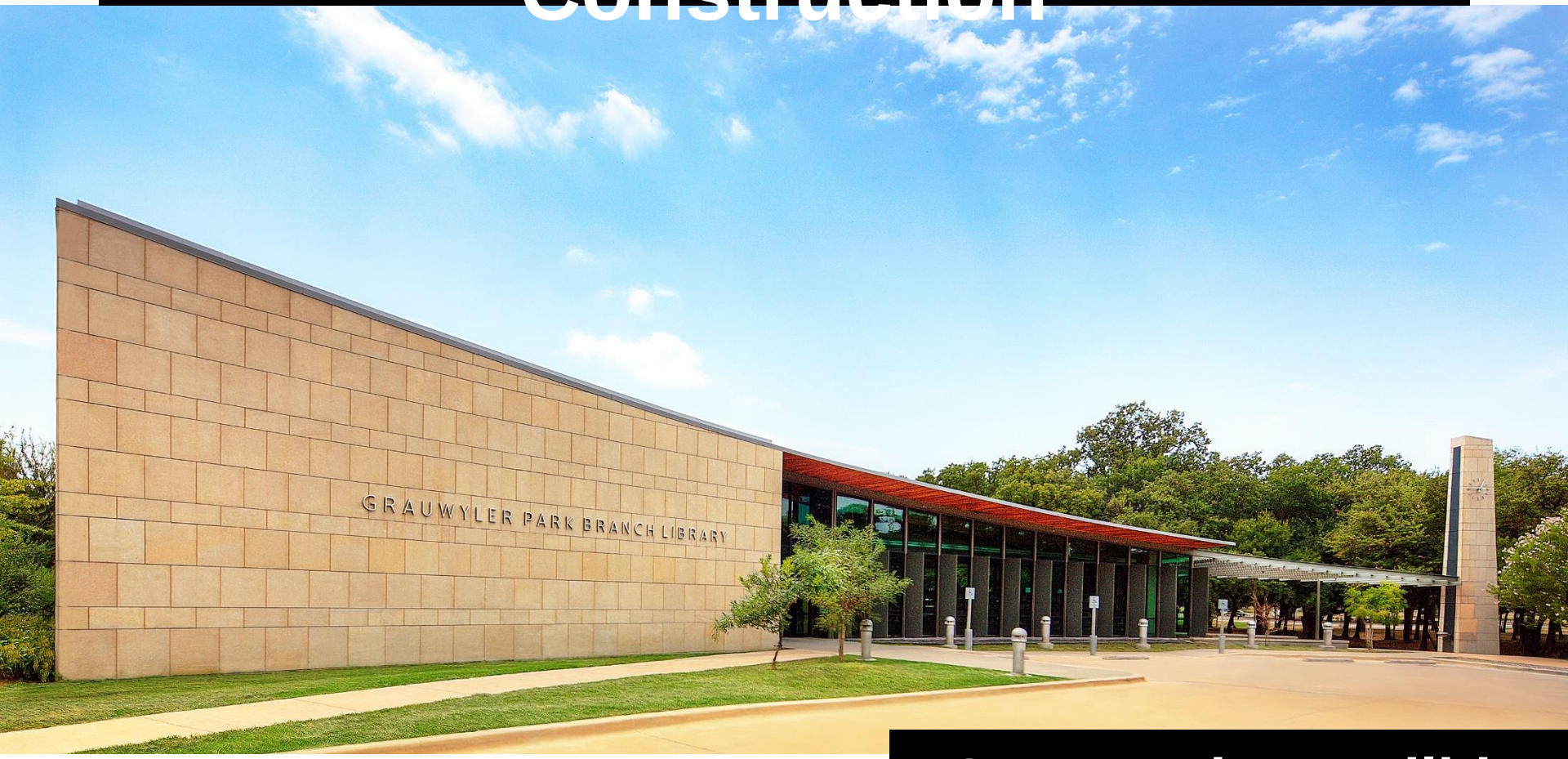
Sustainable Design & Construction



Community Facilities

Grauwyler Park Branch Library ~ LEED SILVER

Sustainable Design & Construction



Community Facilities

Grauwyler Park Branch Library

Sustainable Design & Construction

Grauwyler Park Branch Library

Project Info:

Architect	Oglesby Greene Architects
Civil Engineer	Jaster Quintanilla
MEP Engineer	Floresca Basharkah Partners
Commissioning Agent	Supersymmetry USA,Inc.
Landscape Architect	Caye Cook & Associates
Project Manager	Pankaj Shah, NCARB
Program Manager	David Trevino, AIA
Assistant Director	Zaida Basora, AIA
Director	David Dybala, PE
Site Size:	85,000 s.f.
Location:	2146 Gilford Street
Square Footage:	12,500 s.f.

The Grauwyler Park Branch Library, at only 12,500 s.f., is to be Dallas' smallest programmed new branch facility. The site, hemmed in by setbacks, a utility easement, and a city park, determined the footprint of the building. The residual layout is compact, efficient, and simple. The common public portion opens up to the wooded park and the "back of house" areas zone to the street edges. Parking is shared with the park and connected to its trails. The library acts as a gateway between the two, integrating its community and the park. Primary structure consists of exposed wood decking and glu-lam / cable trusses. Decking extends to shade areas of full height glazing and vertical metal sunscreens block low afternoon sunlight. Opaque walls are clad primarily in native limestone with a mix of composite (Trespa) panels. Roofing is white EDPM. Project will be LEED "silver" rated.

LEED Points

Sustainable Sites

1. Credit 4.1 Alternative Transportation, Public Transportation Access
2. Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms
3. Credit 4.3 Alternative Transportation, Alternative Fuel Vehicles
4. Credit 7.2 Landscape & Exterior Design to Reduce Heat Islands, Roof.
5. Credit 8 Light Pollution Reduction

Water Efficiency

6. Credit 1.1 Water Efficient Landscaping, Reduce by 50%
7. Credit 3.1 Water Use Reduction, 20% Reduction

Energy & Atmosphere

8-13. Credit 1 Optimize Energy Performance
14. Credit 3 Additional Commissioning
15. Credit 4 Ozone Depletion
16. Credit 5 Measurement & Verification

Materials & Resources

17. Credit 2.1 Construction Waste Management, Divert 50%
18. Credit 2.2 Construction Waste Management, Divert 75%
19. Credit 4.1 Recycled Content, Specify 5% (post-consumer + 1/2 post-industrial)
20. Credit 4.2 Recycled Content, Specify 5% (post-consumer + 1/2 post-industrial)
21. Credit 5.1 Local/Regional Materials, 20% Manufactured Locally
22. Credit 5.2 Local/Regional Materials, of 20% above, 50% Harvested Locally
23. Credit 7 Certified Wood

Indoor Environmental Quality

24. Credit 1 Carbon Dioxide Monitoring
25. Credit 2 Ventilation Effectiveness
26. Credit 3.1 Construction IAQ Management Plan, During Construction
27. Credit 3.2 Construction IAQ Management Plan, Before Occupancy
28. Credit 4.
29. Credit 4.
30. Credit 4.
31. Credit 4.
32. Credit 5
33. Credit 7.
34. Credit 7.2 Thermal Comfort, Permanent Monitoring System
35. Credit 8.1 Daylight & Views, Daylight 75% of Spaces

Innovation & Design Process

36. Credit 1.1 Innovation in Design
37 Credit 2 LEED Accredited Professional

Community Facilities

Grauwyler Park Branch Library

Sustainable Design & Construction

Community Facilities

Audelia Branch Library

Sustainable Design & Construction

Community Facilities

Bachman Branch Library ~ LEED SILVER

Sustainable Design & Construction

Community Facilities

Hampton-Illinois Branch Library ~ LEED GOLD

Sustainable Design & Construction

Community Facilities

Lochwood Branch Library ~ LEED SILVER

Sustainable Design & Construction

Community Facilities

Prairie Creek Branch Library ~ LEED PLATINUM

Sustainable Design & Construction

Community Facilities

Pleasant Grove Branch Library

Sustainable Design & Construction

Community Facilities

Pleasant Grove Branch Library

Sustainable Design & Construction

Community Facilities

Polk-Wisdom Branch Library

Sustainable Design & Construction

Community Facilities

White Rock Hills Branch Library

Sustainable Design & Construction

Community Facilities

Fire Station 10 ~ LEED GOLD

Sustainable Design & Construction

Community Facilities

Fire Station 32 ~ LEED GOLD

Sustainable Design & Construction

Dallas Fire Station No. 32 — 4262 N. Jim Miller Rd. Dallas, TX 75227

Site Area: 42,000 Sq. Ft
Floor Area: 12,604 Sq. Ft.
Building Height: 26'-10"
Budget: $4,000,000

Mayor: Mike Rawlings
Council Member District 5: Rick Callahan
Fire Chief: Louie Bright, III
Assistant Chief: Harold Holland
Lieutenant: Brent Wilson

Director: Rick Galceran, P. E.
Assistant Director: Zaida Basora, FAIA, LEED AP BD+C
Program Manager: Gary K. Mueller, AIA, LEED AP
Project Manager: Martha F. Welch, RA, LEED AP

Architect: Brown Reynolds Watford Architects, Inc.
Contractor: Core Construction Services of Texas, Inc.
Public Art: Graphic Content Inc., Art Garcia

The new Dallas Fire Station No. 32 is a contemporary replacement facility for the existing station built in 1951 located on the same site. The existing fire station facility will be retired and later demolished once the construction of the new station is complete. The new four-bay station will feature a Battalion Chief's office, dedicated fitness room, living quarters for twelve fire fighters plus two officers, and secure fire department parking.

The new facility was designed to exceed the Dallas Green Building Program by incorporating building products with recycled content, diverting more than 50% of all construction, demolition, and land clearing debris from landfills. In addition, the utilization of geothermal wells, which helps reduce strain on the HVAC system while also providing sufficient heating for the apparatus bays.

The emergence of the projecting roof towards Jim Miller Road allows for a more welcoming facade, and helps shield the occupants from the harsh western sunlight. The brick materiality of the building evokes the traditional neighborhoods of the 1950s. The clerestory windows above the apparatus bays allow ample natural light inside during the day, while providing an ambient glow during the night. The ultimate goal for this project is to provide a cost-effective, durable, low maintenance, LEED gold-certified building with an architectural image that creates a symbol of protection for the community.

BROWN REYNOLDS WATFORD ARCHITECTS BRW CORE City of Dallas

Fire Station 32~ LEED GOLD

Leadership in Energy and Environmental Design (LEED) Credits

Sustainable Site

SS Preq. 1.0	Construction Activity Pollution Prevention
SS 1.0	Site Selection
SS 2.0	Development Density & Community Connectivity
SS 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms
SS 4.3	Alternative Transportation, Low-Emitting and Fuel - Efficient Vehicles
SS 4.4	Alternative Transportation, Parking Capacity
SS 5.2	Site Development, Maximize Open Space
SS 7.1	Heat Island Effect, Non-Roof
SS 7.2	Heat Island Effect, Roof
SS 8.0	Light Pollution Reduction

Water Efficiency

WE 1.1	Water Efficient Landscaping, Reduce by 50%
WE 1.2	Water Efficient Landscaping, No Irrigation
WE 3.1	Water Use Reduction, 20% Reduction
WE 3.2	Water Use Reduction, 30% Reduction

Energy & Atmosphere

EA Preq. 1.0	Fundamental Commissioning of the Building Energy Systems
EA Preq. 2.0	Minimum Energy Performance
EA Preq. 3.0	Fundamental Refrigerant Management
EA 1.0	Optimize Energy Performance
EA 4.0	Enhanced Refrigerant Management
EA 5.0	Measurement & Verification
EA 6.0	Green Power

Materials & Resources

MR Preq. 1.0	Storage & Collection of Recyclables
MR 2.1	Construction Waste Management, Divert 50% from Disposal
MR 2.2	Construction Waste Management, Divert 75% from Disposal
MR 4.1	Recycled Content, 10% (post-consumer + ½ pre-consumer)
MR 4.2	Recycled Content, 20% (post-consumer + ½ pre-consumer)
MR 5.1	Regional Materials, 10% Extracted, Processed & Manuf. Regionally
MR 5.2	Regional Materials, 20% Extracted, Processed & Manuf. Regionally

Indoor Environmental Quality

EQ Preq. 1.0	Minimum IAQ Performance
EQ Preq. 2.0	Environmental Tobacco Smoke (ETS) Control
EQ 1.0	Outdoor Air Delivery Monitoring
EQ 3.1	Construction IAQ Management Plan, During Construction
EQ 3.2	Construction IAQ Management Plan, Before Occupancy
EQ 4.1	Low-Emitting Materials, Adhesives & Sealants
EQ 4.2	Low-Emitting Materials, Paints & Coatings
EQ 4.4	Low-Emitting Materials, Composite Wood & Agrirber Products
EQ 6.1	Controllability of Systems, Lighting
EQ 6.2	Controllability of Systems, Thermal Comfort
EQ 7.1	Thermal Comfort, Design
EQ 7.2	Thermal Comfort, Verification
EQ 8.2	Daylighting & Views, Views for 90% of Spaces

Innovation and Desig

ID 1.1	
ID 1.2	
ID 1.3	
ID 1.4	
ID 2.0	

46 Total Estimated LEED Credits

Community Facilities

Sustainable Design & Construction

Community Facilities

Fire Station 33 ~ LEED SILVER

Sustainable Design & Construction

Community Facilities

Sustainable Design & Construction

Community Facilities

Fire Station 34

Sustainable Design & Construction

Community Facilities

Fire Station 37

Sustainable Design & Construction

Community Facilities

Fire Station 38 ~ LEED SILVER

Sustainable Design & Construction

Community Facilities

Fire Station 39

Sustainable Design & Construction

Community Facilities

Fire Station 40 ~ LEED SILVER

Sustainable Design & Construction

Community Facilities

Fire Station 42 ~ LEED GOLD

Sustainable Design & Construction

FIRE STATION 6

Fire Station 6 is a 12,000 sf replacement for an existing fire station, targeted to achieve LEED Platinum (as opposed to the required Gold) as well as City of Dallas goals for integrated Stormwater Management (iSWM) and the 2030 Challenge for carbon neutrality. The standard fire station program includes apparatus bays, offices, and living facilities for fire personnel.

While Fire Station 6 is a municipal facility that will not often be visited by the public, it houses some of our most revered public servants. DSGN assessed what would provide the most comfort and quiet for the firefighters' sleeping quarters, the best functional flow of personnel to gathering areas and equipment, and the most efficient way to get fire rescue vehicles in and out of the station. The result is the inclusion of drive-through apparatus bays that will allow fire-rescue vehicles to flow in and out of the station with ease. A tree-shaded private courtyard with grilling and dining facilities is nestled between the separated sleeping and office wings of the station to improve the quality of life of the firefighters awaiting the next call. The apparatus are celebrated by being housed in a glass "jewel box" that glows in a display of civic pride. The landscape will be returned to natural prairie and will flow to an adjacent park - as well as to planned park areas fronting the soon-to-be-developed S.M. Wright Boulevard. A fully integrated BIM model was used for architectural, structural, and MEP drawing interface to enable early detection of conflicts.

LOCATION
DALLAS, TEXAS

RECOGNITION
2012 FIERO HONOR AWARD FOR DESIGN IN PROGRESS

DATE OF COMPLETION
2015

PROJECT BUDGET
$5.2M (TARGETED LEED PLATINUM AND CARBON NEUTRAL)

FINAL CONSTRUCTION COSTS
$3,497,756 AT 95% CONSTRUCTION DOCUMENT ESTIMATE

CLIENT
CITY OF DALLAS

PRINCIPAL-IN-CHARGE
ROBERT L. MECKFESSEL, FAIA, LEED AP BD+C

PROJECT MANAGER / ARCHITECT
BETH BRANT, AIA, LEED AP BD+C

FIERO

Community Facilities

Fire Station 6~ LEED PLATINUM

Sustainable Design & Construction

Community Facilities

Fire Station 50 ~ LEED GOLD

Sustainable Design & Construction

PERKINS + WILL

Fire Station 50
City of Dallas
Dallas Fire-Rescue
Dallas, Texas

Area Analysis
Site: 1.02 Acres
Building: 12,315 square feet

Project Team
Owner
City of Dallas

Occupant
Dallas Fire-Rescue

Architect
Perkins+Will

Program Specialist
TCA Architecture and Planning

Consultants
JQ – Structural Engineer
B&H – MEP Engineer
Pacheco Koch – Civil Engineer
Environs Group – Landscape Architect
AIR Engineering & Testing – Commissioning Agent

Design-Build Contractor
Core Construction

Dallas' new Fire Station 50 is located adjacent to the northwest corner of Walton Walker (Loop 12) and Keeneland Parkway at 841 S. Walton Walker Blvd. This new 12,000 sf facility is a one-story, multiple company station designed for 15 firefighters per shift, with 2 full-bays, and 2 half-bays. This project is being completed using the design-build method of delivery through the use of BIM. Sustainable principles were incorporated throughout the design and is currently pending LEED Gold certification.

Fire Station 50 takes its design cue by responding to the frontage it has with Walton Walker Freeway. The majority of passer-byes will view this facility at freeway speeds, predominantly traveling from north to south. As such, it was important that the station announces itself to the freeway with an appropriate civic scale while maintaining the iconic aspects that depict a fire station. This "freeway architecture" borrows from the tradition of Route 66 with large, animated super-graphics capable of identification during the 1-2 seconds of afforded view. A feeling of embedded movement is displayed with a racing, italic font and "floating" signage that is always changing and moving with the sun. The large sweeping roof gesture creates a front to the building while resolving the conflict of having the bay doors, the traditional front, facing north - a necessity attributed to the tight site. Iconic "fire-engine red" metal panels outline the apparatus bay to highlight the operational, and most recognizable portion of the station, and turn the corner to visually connect it with the station frontage.

ERKINS + WILL

Fire Station 50
City of Dallas
Dallas Fire-Rescue
Dallas, Texas

Proposed LEED Credits

Sustainable Sites

SS CR 1	Site Selection
SS CR 2	Development Density & Community Connectivity
SS CR 4.1	Alternative Transportation, Public Transportation
SS CR 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms
SS CR 4.3	Alternative Transportation, Low-Emitting & Fuel Efficient Vehicles
SS CR 4.4	Alternative Transportation, Parking Capacity
SS CR 7.1	Heat Island Effect, Non-Roof
SS CR 7.2	Heat Island Effect, Roof
SS CR 8	Light Pollution Reduction

Water Efficiency

WE CR 1.1	Water Efficient Landscaping, Reduce by 50%
WE CR 3.1	Water Use Reduction, 20% Reduction
WE CR 3.2	Water Use Reduction, 30% Reduction

Energy & Atmosphere

EA CR 1.5	Optimize Energy Performance, (24.5%)
EA CR 3	Enhanced Commissioning
EA CR 5	Measurement & Verification
EA CR 6	Green Power

Materials & Resources

MR CR 2.1	Construction Waste Management, Divert 50%
MR CR 2.2	Construction Waste Management, Divert 75%
MR CR 4.1	Recycled Content, 10% (post-consumer + 1/2 pre-consumer)
MR CR 4.2	Recycled Content, 20% (post-consumer + 1/2 pre-consumer)
MR CR 5.1	Regional Materials, 10% Extracted, Processed & Manufactured
MR CR 5.2	Regional Materials, 20% Extracted, Processed & Manufactured
MR CR 7	Certified Wood

Indoor Environmental Quality

IEQ CR 1	Outdoor Air Delivery Monitoring
IEQ CR 3.1	Construction IAQ Management Plan, During Construction
IEQ CR 3.2	Construction IAQ Management Plan, Before Occupancy
IEQ CR 4.1	Low-Emitting Materials, Adhesives & Sealants
IEQ CR 4.2	Low-Emitting Materials, Paints & Coatings
IEQ CR 4.3	Low-Emitting Materials, Carpet Systems
IEQ CR 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products
IEQ CR 5	Indoor Chemical & Pollutant Source Control
IEQ CR 6.1	Controllability of Systems, Lighting
IEQ CR 6.2	Controllability of Systems, Thermal Comfort
IEQ CR 7.1	Thermal Comfort, Design
IEQ CR 7.2	Thermal Comfort, Verification
IEQ CR 8.1	Daylight & Views, Daylight 75% of Spaces
IEQ CR 8.2	Daylight & Views, Views for 90% of Spaces

Innovation & Design Process

ID CR 1.1	Innovation in Design: Exemplary MRC5 Regional Materials
ID CR 1.2	Innovation in Design: Exemplary MRC4 Recycled Content
ID CR 1.3	Innovation in Design: Low Mercury Lamps
ID CR 1.4	Innovation in Design: Exemplary SSc7.1 - 100% high albedo
ID CR 2	LEED Accredited Professional

Fire Station 50 ~ LEED GOLD

Community Facilities

Sustainable Design & Construction

PERKIN

CITY OF DALLAS
FIRE STATION NO. 27

LEED Gold Registered
SITE .43 Acres
BUILDING 23,600 square feet
PROJECT TEAM
Owner: City of Dallas
Occupant: Dallas Fire-Rescue
Architect: Perkins+Will
Program Specialist: TCA Architecture and Planning
Consultants:
JQ – Structural Engineer
B&H – MEP Engineer
Pacheco Koch – Civil Engineer
David T. Retzsch Design – Landscape Architect
FPA – Commissioning Agent
Public Artist: Rex Kare Studio
Contractor: Bartlett Cocke

The design for the new City of Dallas Fire Station intends to re-establish a civic presence.

The new facility for 15 fire personnel per shift, will represent the most advanced design of all the City of Dallas' new fire stations. Responding to an urban site that was too small to accommodate the program and required parking, a vertical solution was developed. Below grade is a secure parking garage for 18 personnel vehicles. The ground level contains the main living areas and the pull-through apparatus bays, while the second level houses isolated sleeping quarters and an innovative fitness room suspended over the apparatus bays. The layout was carefully orchestrated to keep the response time to under 60 seconds.

The design intends to re-establish a proper civic presence for the firehouse. Volumetric separation between the people-places and the machine-spaces is created by a glazed atrium. Defined by a 2-story high "story wall," this atrium brings natural daylight deep into the building and celebrates the history and legacy of firefighting in the service of community.

The fire station is LEED Gold registered, employing sustainable design strategies such as solar panels, a storm water collection cistern, and high performance glazing, lighting and HVAC system.

Fire Station 27 ~ LEED GOLD

FIRE STATION 27 /

Proposed LEED Credits

Sustainable Sites

SS CR 1	Site Selection
SS CR 2	Development Density & Community Connectivity
SS CR 4.1	Alternative Transportation, Public Transportation Access
SS CR 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms
SS CR 4.3	Alternative Transportation, Low-Emitting & Fuel Efficient Vehicles
SS CR 4.4	Alternative Transportation, Parking Capacity
SS CR 6.1	Stormwater Design, Quantity Control
SS CR 7.1	Heat Island Effect, Non-Roof
SS CR 7.2	Heat Island Effect, Roof
SS CR 8	Light Pollution Reduction

Water Efficiency

WE CR 1.1	Water Efficient Landscaping, Reduce by 50%
WE CR 2	Innovative Wastewater Technologies
WE CR 3.1 & 3.2	Water Use Reduction, 30% Reduction

Energy & Atmosphere

EA CR 1	Optimize Energy Performance
EA CR 2	On-Site Renewable Energy
EA CR 3	Enhanced Commissioning
EA CR 5	Measurement & Verification
EA CR 6	Green Power

Materials & Res

MR CR 2.1 & 2	C D
MR CR 4.1 & 4	Recycled Content, 20% (post-consumer + 1/2 pre-consumer)
MR CR 5.1 & 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally
MR CR 7	Certified Wood

Indoor Environmental Quality

IEQ CR 1	Outdoor Air Delivery Monitoring
IEQ CR 3.1	Construction IAQ Management Plan, During Construction
IEQ CR 3.2	Construction IAQ Management Plan, Before Occupancy
IEQ CR 4.1	Low-Emitting Materials, Adhesives & Sealants
IEQ CR 4.2	Low-Emitting Materials, Paints & Coatings
IEQ CR 4.3	Low-Emitting Materials, Carpet Systems
IEQ CR 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products
IEQ CR 5	Indoor Chemical & Pollutant Source Control
IEQ CR 6.1	Controllability of Systems, Lighting
IEQ CR 6.2	Controllability of Systems, Thermal Comfort
IEQ CR 7.1	Thermal Comfort, Design
IEQ CR 7.2	Thermal Comfort, Verification

Innovation & Design Process

ID CR 1.1	Innovation in Design: Exemplary 55c7.1 Heat Island Effect, Non-Roof
ID CR 1.2	Innovation in Design: Exemplary MRc7 Certified Wood
ID CR 1.3	Innovation in Design: Exemplary EAc6 Green Power
ID CR 2	LEED Accredited Professional

Community Facilities

Sustainable Design & Construction

CITY OF DALLAS
FIRE-RESCUE DEPARTMENT
FIRE STATION NO. 44

McAfee³ ARCHITECTS

Architect: McAfee³ Architects, Inc.

Consultants:
JQ - Civil Engineer
JQ - Structural Engineer
M.E.P. Consulting - MEP Engineer
Caye Cook and Associates - Landscape Architect
FPA - Commissioning Agent

Public Artist: Dan Brooks

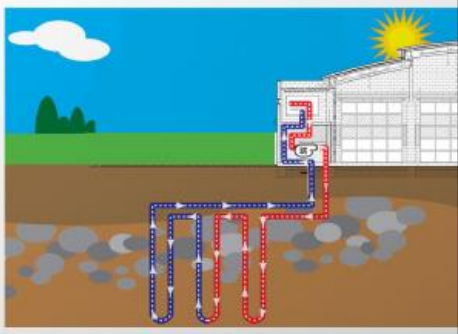
Contractor: RWC

This facility is a 12,000 sq. ft. replacement facility for the existing station structure built in 1959 located in east Dallas. . This new station includes two full (70') and two half (40') apparatus bays, with living quarters to accommodate fifteen firefighters per shift.
Because we looked at various options that reflected the best design Solutions for Fire Station No. 44, the process brought about a unique design solution. The following are the key ingredients to an innovative design. The orientation of the building to allow for day lighting opportunities to the northeast, and northwest. The Northeast windows look out to the neighborhood and the Northwest looks onto the fair grounds. Patio areas and outdoor green space were created within the secure area for fire fighters to relax and exercise. Windows to the southeast and southwest have overhangs to reduce the amount of sun into the adjacent rooms. The facility on the site is placed in a location where the watch commander has the best control and visibility of the apparatus bay and front driveway, the Fitzhugh and Lagow Intersection, the fuel station, visitors and employee parking, and the dumpster enclosure. The facility is also accessible to visitors who come in for an emergency or just a blood pressure check. The site layout and visibly accessible circulation pattern provide customers with friendly directions and enhances public and fire fighter safety.

FIRE STATION NO. 44

GEO-THERMAL DESIGN

The Fire Station is served by a Geothermal Heat Pump System. That is, water cooled electric heat pumps. The water is cooled in summer and warmed in winter by circulating through vertical wells in the ground (about 300' deep). There are (2) well fields, with (1) pump/well field. The water cooled DX units operate more efficiently than air-cooled units. There are (5) such units serving the living quarters, fitness areas, corridors, kitchen, and study areas. The units are in mechanical rooms and the conditioned air is ducted to and from the spaces conditioned. Each of the heat pumps has outside air ducted to the return air for that unit.
The facility also has a natural gas-fired emergency generator on the mezzanine floor with exhaust out the northeast wall.
The entire facility is protected by an automatic fire sprinkler system.

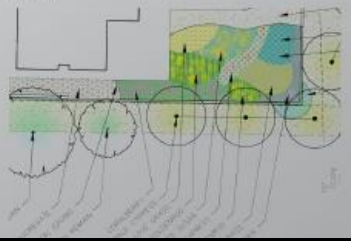


RAIN GARDEN

LANDSCAPING
The landscape and irrigation designs for the new City of Dallas Fire Station 44, Dallas, Texas were developed by using native and adapted low-water and medium-water plant species for planting beds, native turf grass lawn areas on the site, and providing a high efficiency irrigation system.
The use of native and hardy adapted plants was vital in creating an environment that was easily maintained, placed plants in a condition where there was limited competition for resources, and required less water than standard planting palettes. Plant materials selected (see list below) includes trees, shrubs, ornamental grasses, groundcover, and turfgrass. Aggregates are used for aesthetic and accessible concerns.

Five criteria were primarily used for the planting beds and landscape materials selection for the new construction:
- provide plants and landscape surfaces that require less maintenance
- provide plants that will survive in lower to moderate-water conditions and annual rainfall events
- provide plants that grow well with the different light exposures around the building
- provide native turfgrass areas that do not need irrigation or high maintenance once established, and
- provide decomposed granite pathways and aggregate for building base access areas to reduce irrigation needs.

IRRIGATION
A low-water use, high efficiency irrigation system was designed for the site using bubbler/drip irrigation for all planting beds and at trees and limiting rotary and sprays to establish turf areas. No permanent irrigation will be installed in the native turf grass areas around the site edges or in the weeping love grass beds. The system includes conventional irrigation pipe, valves, spray-type heads, bubbler heads, quick coupling valves, drip lines with filters, and an efficient water management automatic controller system for irrigation zones. The irrigation system used a "Hydrozone" design method to maximize water efficiency. Each specific plant type or group of plants was isolated for their specific water use needs and per orientation and location.



Fire Station 44 ~ LEED GOLD

Community Facilities

Sustainable Design & Construction

Community Facilities

South Central Police Station ~ LEED GOLD

Sustainable Design & Construction

Community Facilities

South Central Police Station

Sustainable Design & Construction

Community Facilities

Highland Hills Branch Library ~ LEED GOLD

Sustainable Design & Construction

Community Facilities

Trinity Audubon Center~ LEED GOLD

Sustainable Design & Construction

Community Facilities

Northwest Service Center~ LEED GOLD

Sustainable Design & Construction

Community Facilities

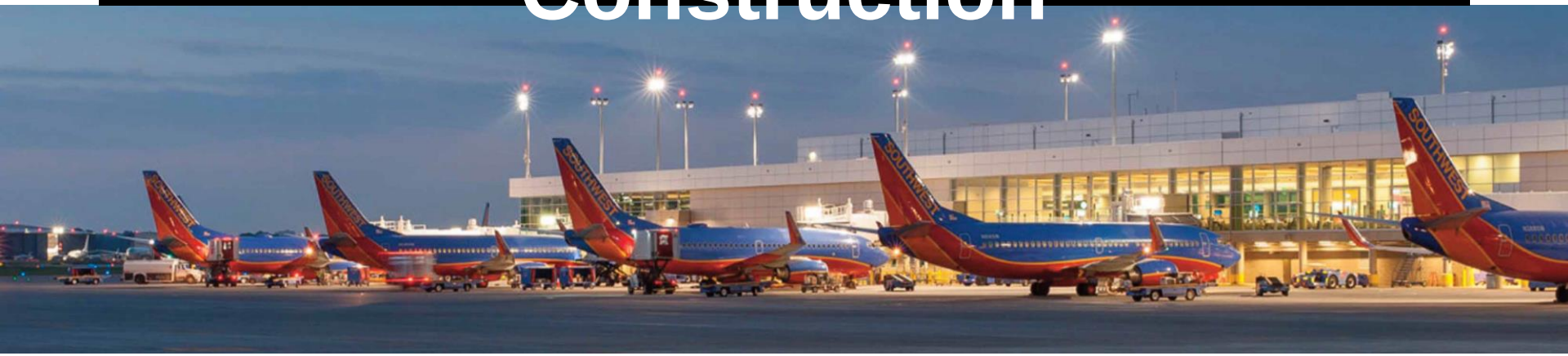
Moody Performance Hall~ LEED PLATINUM

Sustainable Design & Construction

Community Facilities

The Bridge Homeless Assistance Center~ LEED SILVER

Sustainable Design & Construction



SIZE: 650,000 SF (NEW); 250,000 SF (RENOVATION)

The project incorporates several innovative environmentally friendly concepts. A new modern ticketing hall is used by all airlines. The bag claim hall has been expanded to accommodate future demand levels and the main lobby has been renovated and expanded. Three existing concourses have been replaced by one single concourse. The design maintains the basics for which Love Field is known, passenger convenience, operational efficiency and maintainability. (Source: Corgan.com website)

Community Facilities

Dallas Love Field Terminal Modernization~ LEED SILVER

Sustainable Design & Construction

Community Facilities

KBH Convention Center Dallas~ LEED SILVER EB+OM

Sustainable Design & Construction

The DMA LEED Silver certification is based on a number of operational and maintenance practices that positively impact the project itself and the broader community:

Reduced Mercury in Lamps– A lamp purchasing policy targets 90% of all mercury containing lamps and achieves an average of 57% reduction in mercury levels measured in picograms per lumen-hour.
Heat Island Reduction—94% of parking areas are located under cover to minimize impact on microclimates, human and wildlife habitat.
Water Performance Measurement—Permanently installed water meters measure the total potable water consumption for the entire building and associated grounds to identify opportunities for water savings.
Optimize Energy Efficiency Performance—The building has demonstrated energy efficiency in the 24th percentile above the national median reducing environmental and economic impact associated with excessive energy use.
Sustainable Purchasing—A sustainable purchasing policy achieves over 97% of purchased products to comply with Environmental Preferable Purchasing (EPP) criteria.
Green Cleaning—A High-Performance Cleaning Program reduces the exposure of building occupants, visitors and staff to potentially hazardous contaminants.
Building Exterior and Hardscape Management Plan—The exterior hardscape management plan employs environmentally sensitive practices to help preserve surrounding ecological integrity.

Community Facilities

Dallas Museum of Art~ LEED SILVER EB+OM

Sustainable Design & Construction

- Over 40 new sustainable city facilities
- Sustainable approach to existing building retrofits
- Implementation of energy management policy
- Public Works update in 2006 requiring minimum of LEED Gold
- Training city employees on sustainability
- Training of contractors on sustainable practices

Green Building Program

2018 GSA Study

HIGHER EFFICIENCY TRANSLATES TO DOLLARS SAVED

A 2018 GSA report examined 200 buildings over a three-year period and found that compared to legacy buildings, GSA's high-performing buildings show: 23% less energy use, 28% less water use, **23% less** building operating expenses, and a 9% decrease in waste generated. Many of the high-performing buildings in the GSA study are LEED-certified.

the result

- Dallas has changed in a significant way
- Dallas will continue to change in the years to come
- The collaborative innovations will continue